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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/572,816	03/22/2006	Shahram Mihan	LU 6132 (US)	5070
34872	7590	01/11/2008		
Basell USA Inc. Delaware Corporate Center II 2 Righter Parkway, Suite #300 Wilmington, DE 19803			EXAMINER TESKIN, FRED M	
			ART UNIT	PAPER NUMBER
			1796	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/572,816	Applicant(s) MIHAN ET AL.	
	Examiner Fred M. Teskin	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) ____ is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-10 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>20060911</u> . | 6) <input type="checkbox"/> Other: ____. |

The preliminary amendment of March 22, 2006 has been entered. Claims 1-10 are currently pending and under examination herein.

Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 (and claims dependent thereon) is indefinite due to improper Markush language in the recitation "selected from the group comprising ...". Use of the open term "comprising" instead of "consisting" is improper and renders the scope of the group indeterminate; see MPEP 2173.05(h)(I). Appropriate correction is required.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-7, 9 and 10 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over GB 1482148 ("Segalini").

Segalini discloses a chemical reactor in the form of a closed loop, comprising a number of sections detachably connected in sequence, the sections including a pump for circulating reaction medium around the loop (corresponding to applicants' "axial pump")(see page 1, ll. 14+). The reactor is described as suitable for the copolymerization of vinyl esters with ethylenically unsaturated gaseous comonomers including ethylene, propylene, 1-butene and 1-hexene (*Id.*, ll. 40-50). Specific disclosure is provided (see Example 5) to use of the reactor to copolymerize ethylene and vinyl acetate at temperatures (75-80°C) and a pressure (30 kg/cm², equating to 29 bar) within the claimed ranges (*cf.*, claim 1, ll.3-5), the copolymer product being obtained in the form of an aqueous dispersion of resin beads (corresponding to applicants' "suspension in a ... liquid medium").

As to the claimed variance in reactor tube diameter, attention is directed to the drawing figure of Segalini. The figure depicting a closed loop reactor wherein the annular reactor tube is shown as widening in diameter at a region removed from the circulating pump, as well as at the pump region itself. In fact the extent of widening at the region towards the bottom of the right vertical leg section appears comparable to that shown for applicants' reactor tube (*cf.*, Segalini drawing with Fig. 1 herein). As such, Segalini is seen to teach, at least implicitly, a cyclic reactor tube whose diameter varies by at least 10 %, as per claim 1, in terms of widening at a region other than that of the axial pump, for use in a polymerization process performed under the applicants' conditions as claimed.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Segalini in view of US 6476161 ("Harlin").

Segalini is applied as in the preceding rejection. The requirement of claim 8 for at least one further polymerization step in a second loop reactor or a gas-phase reactor is not disclosed therein. Nevertheless, utility of the requisite multi-step polymerization in preparing polymers of olefinic monomers is well known in the art as evidenced by Harlin, see column 1, lines 10-20. Harlin specifically discloses a cascade of at least one slurry reactor and at least one gas phase reactor, connected in series (col. 7, ll. 18+), which is taught to provide for a wide variety of different copolymers (col. 5, ll. 45-50). Harlin further defines "slurry reactor" to mean any continuous or simple stirred tank reactor or loop reactor, in which the polymer is formed in particulate form (col. 6, ll. 23-25). As aforementioned, Segalini teaches a closed loop reactor as utile in preparing aqueous dispersions of polymer (resin). At the time of applicants' invention, one of ordinary skill in the art seeking to produce different copolymer compositions (e.g., block copolymers or reactor blends) would have found it obvious to modify Segalini by including a second polymerization step in a gas-phase reactor, in view of the teachings of Harlin and motivated by a reasonable expectation of success.

The prior art made of record and not relied upon is considered pertinent to applicants' disclosure.

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Kufeld et al is cited as pertinent to the provision of a reactor wall surrounding the impeller within a slurry loop reactor that is greater in diameter than the general diameter of the piping forming the reactor (note col. 4, ll. 55+).


Claim 2 is objected to as being dependent on a rejected base claim but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claim. Carrying out the polymerization of the claimed process at an average solids concentration as per claim 2 is not disclosed nor adequately suggested in the available prior art.

Any inquiry concerning this communication should be directed to Examiner F. M. Teskin whose telephone number is (571) 272-1116. The examiner can normally be reached on Monday through Thursday from 7:00 AM - 4:30 PM, and can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The appropriate fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

FMTeskin/01-04-08


FRED TESKIN
PRIMARY EXAMINER
1796